## REMARKS

The Office Action of September 24, 2002 was received and carefully reviewed. In light of the amendments presented above, reconsideration and withdrawal of the currently pending rejections is requested for the reasons advanced in detail below. Claims 1-6 are currently pending.

With regard to the Examiner's rejections of:

> Claims 1-6, under 35 U.S.C. 102(b), as being anticipated by the teachings of Furukawa et al '977,
>
> Claims 31-33, under 35 U.S.C. 102(b), as being anticipated by the teachings of Kuhara et al '215, and
>
> Claims 34 and 35, under 35 U.S.C. 103(a), as being obvious in view of the combined teachings of Kuhara et al '215 and Furukawa et al '977

each of these rejections is respectfully traversed.

Specifically, the rejections of claims 31-35 have been rendered moot in light of the cancellation of those claims.

While with regard to the rejection under §102(b) relying on Furukawa et al '977, the presently claimed invention, i.e., amended independent claims 1 and 4, recites an essential feature of the claim 1 invention as follows:

> an active layer, which is made of $In_yGa_{1-y}N$ and is formed over the first cladding layer; and
>
> a second cladding layer, which is made of still another nitride semiconductor of a second conductivity type and is formed over the active layer,
>
> wherein an $In_xGa_{1-x}N$ layer of the first conductivity type is formed between the substrate and the first cladding layer, and $x \geq y$ in the composition of In. (emphasis added)

further for the claim 4 invention the essential feature is:

> an active layer, which is made of $In_yGa_{1-y}N$ and is formed over the first cladding layer;
>
> a second cladding layer, which is made of still another nitride semiconductor of a second conductivity type and is formed over the active layer; and
>
> an electrode formed over the second cladding layer,
>
> wherein an $In_xGa_{1-x}N$ layer of the second conductivity type is formed between the second cladding layer and the electrode, and $x \geq y$ in the composition of In. (emphasis added)

By providing the claimed sequence of an $In_xGa_{1-x}N$ layer, a first cladding layer, an $In_yGa_{1-y}N$ layer, and second cladding layer for claim 1, the effect of spontaneous emission from the active layer being absorbed by the $In_xGa_{1-x}N$ layer can be achieved which avoids the problem of the mixing of spontaneous emissions with the laser radiation, as discussed in the specification, page 4, line 15, to page 5, line 22.

However, according to Furukawa et al (column 4, lines 32-64; column 10, lines 10-12) other than the active layer 26, an In included nitride semiconductor layer is not included. Each of the first buffer layer 14, n-type buffer layer 22 and p-type buffer layer 30 that form the semiconductor layer indicated by the Examiner (and allegedly functions as a spontaneous-emission-absorbing layer) are composed of GaN. Further, Furukawa et al disclose that no In included nitride semiconductor layer is provided between the substrate 12 and the first cladding layer 24.

Hence, Furukawa et al is different from the present invention, in which other than the active layer, the $In_xGa_{1-x}N$ layer is also interposed between the substrate and the first cladding layer. Moreover, since Furukawa et al fail to disclose that the $In_xGa_{1-x}N$ layer is interposed between the substrate and the first cladding layer, Furukawa et al also fail to teach or suggest that $x \geq y$ in the composition of In of the presently claimed invention.

In Furukawa et al (column 6, lines 11-12), the quantity of In included in the center portion of the active layer 26 is higher than that in the periphery. It may, therefore, be

assumed that Furukawa et al disclose that the center portion of the active layer 26 is the initial active layer and the periphery is the In included nitride semiconductor layer.

According to amended claim 1, the quantity of In included in the active layer made of $In_yGa_{1-y}N$ is less than or equal to that included in the $In_xGa_{1-x}N$ layer. However, if it is assumed that the center portion of the active layer 26 of Furukawa et al is the initial active layer and the periphery is the In included nitride semiconductor layer, the quantity of In included in the center portion is more than that included in the In included nitride semiconductor layer at the periphery. Therefore, even if it is assumed that the center portion of the active layer 26 of Furukawa et al is the initial active layer and the periphery is the In included nitride semiconductor layer, Furukawa is different from the present invention.

With regard to claim 4, the Furukawa et al reference also fails to teach or suggest the claimed sequence of a first cladding layer, an active layer of $In_yGa_{1-y}N$, a second cladding layer, and $In_xGa_{1-x}N$ layer and an electrode for essentially the same reasons as set forth above for claim 1. This sequence of layers, like those of claim 1, provides the effect of any spontaneous emission from the active layer being absorbed by the $In_xGa_{1-x}N$ layer, as discussed in the specification, page 4, line 15, to page 5, line 22 and page 11, line 14, to page 12, line 9.

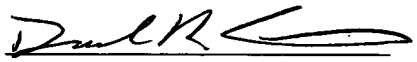
In contrast, Furukawa et al discloses the active layer 26 and fails to disclose the In included nitride semiconductor layer presently claimed positioned between the second cladding layer and the electrode. Moreover, even if it is assumed that the center portion of the active layer 26 of Furukawa et al is the initial active layer and the periphery is the In included nitride semiconductor layer the structure of claim 4 would not be achieved..

Consequently, amended claims 1-6 not anticipated by the teachings of Furukawa et al '977 and it is respectfully requested that the rejection, under §102, be withdrawn.

Having responded to all rejections set forth in the outstanding Office Action, it is submitted that claims 1-6 are in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the

above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,



Donald R. Studebaker
Registration No. 32,815

Nixon Peabody LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 770-9300
(703) 770-9400 fax

DRS/JWM

**Version with Markings to Show changes Made**

**In the Claims:**

Please cancel claims 31-35.

Please amend claims 1-6 as follows:

1. (Amended) A semiconductor laser device comprising:

a first cladding layer, which is made of a nitride semiconductor of a first conductivity type and is formed over a substrate;

an active layer, which is made of [another nitride semiconductor] $In_yGa_{1-y}N$ and is formed over the first cladding layer; and

a second cladding layer, which is made of still another nitride semiconductor of a second conductivity type and is formed over the active layer,

wherein [a spontaneous-emission-absorbing layer, which is made of yet another nitride semiconductor] an $In_xGa_{1-x}N$ layer of the first conductivity type [and absorbs spontaneous emission that has been radiated from the active layer,] is formed between the substrate and the first cladding layer, and $x \geq y$ in the composition of In.

2. (Amended) The device of claim 1, wherein the [spontaneous mission-absorbing layer contains indium and] $In_xGa_{1-x}N$ layer is formed in contact with the first cladding layer

3. (Amended) The device of Claim 1, wherein the [spontaneous emission-absorbing layer contains indium and] $In_xGa_{1-x}N$ layer is formed in contact with the substrate.

4. (Amended) A semiconductor laser device comprising:

a first cladding layer, which is made of a nitride semiconductor of a first conductivity type and is formed over a substrate;

an active layer, which is made of [another nitride semiconductor] $\underline{In_yGa_{1-y}N}$ and is formed over the first cladding layer;

a second cladding layer, which is made of still another nitride semiconductor of a second conductivity type and is formed over the active layer; and

an electrode formed over the second cladding layer,

wherein [a spontaneous-emission-absorbing layer, which is made of yet another nitride semiconductor] an $\underline{In_xGa_{1-x}N}$ layer of the second conductivity type [and absorbs spontaneous emission that has been radiated from the active layer,] is formed between the second cladding layer and the electrode, and $\underline{x \geq y}$ in the composition of In.

5. (Amended) The device of Claim 4, wherein the [spontaneous emission-absorbing layer contains indium and] $\underline{In_xGa_{1-x}N}$ layer is formed in contact with the second cladding layer.

6. (Amended) The device of Claim 4, wherein the [spontaneous emission-absorbing layer contains indium and] $\underline{In_xGa_{1-x}N}$ layer is formed in contact with the electrode.